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Theory and practice in the water sector reforms in Zimbabwe: A comparative study of Harare and Masvingo local authorities.

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ABSTRACT

This study is an analysis of the implementation of the Integrated Water Resource Management (IWRM) public policies relating to potable water supply in Zimbabwe using Harare and Masvingo local authorities as case studies. The study hypothesizes that the adoption of the IWRM policy framework in Zimbabwe was not followed by comparable implementation of the framework. The study sought to investigate the extent to which policy and institutional frameworks helped in implementing the IWRM paradigm in Harare and Masvingo, and then draw comparative lessons from the experiences of the two cases. Research methods involved both a theoretical review and an empirical study based on case studies, making use of comparative, qualitative, historical and exploratory approaches. The study established that while the framework for a perfect water management system exists in Zimbabwe, the situation on the ground does not reflect this. The reform process has not progressed as expected owing to a combination of factors ranging from conflicting policies and weak institutional linkages, to insufficient funding. The study recommends an integrated systems approach to the management of potable water supply, involvement of stakeholders in decision-making, enforcement of water laws, venturing into entrepreneurial activities and interval reviews and check-ups. It suggests that potable water supply infrastructure be improved using the business community and other stakeholders who should be mobilised with attractive incentives.

Key words: potable water, IWRM, policies, implementation, Harare, Masvingo

1. INTRODUCTION

In 1998 Zimbabwe adopted the integrated water resources management (IWRM) paradigm and formulated new legislation in line with the dictates of the new thinking. A unique feature of this new thinking that distinguishes it from previous water policy frameworks in the country is the participation of all stakeholders, especially users of water in the decision-making process through consultative catchment management structures at various levels. According to Pazvakavambwa (2002), these water sector reforms were a result of both international calls for more efficient and sustainable water management approaches and forces inside the country.

This study examines water sector reforms in Zimbabwe with special focus on local potable water supply governance in the municipalities of Harare and Masvingo since the late 1990s. The study argues that there are serious gaps in the Zimbabwean water use policies and implementation. While the availability of current acceptable and supportive public potable water supply policy and legislation in the country indicates the beginning of a commendable process of water services delivery to all stakeholders, this alone is not sufficient unless supported by effective systems and processes for effective delivery. Formulation and adoption of a policy or piece of legislation does not automatically translate to its implementation and/or enforcement.

2. RESEARCH QUESTION

The question addressed in this study is whether the theory of participative water governance, as outlined in the adopted policies and legislation, has been applied in the development and governance of potable water supply in Zimbabwe. How has Zimbabwe (as represented by the selected cases) fared in the implementation of the IWRM governance paradigm? To what extent are the grassroots and other stakeholders involved in the formulation and adoption of legislation and policies that govern their access to potable water supply services in Zimbabwe?

The study hypothesizes that the adoption of the IWRM policy framework in Zimbabwe was not followed by comparable implementation of the framework.

3. CONTRIBUTION OF THIS STUDY TO THE PUBLIC MANAGEMENT BODY OF KNOWLEDGE

This study will contribute insight into both the debate and practice of public governance in general and potable water governance in particular. It will contribute to the understanding of governance regimes that underlie the provision of potable water to residents of the selected cases in light of the IWRM paradigm. Findings of the study will also be used by academics as training material and a basis for further studies and

dialogues among communities in the region. In fact, through better understanding of the complexity and dynamics of water sector reforms in Zimbabwe, the study will provide lessons learnt on potentially the most critical issues as a basis for future reforms and practices in the governance of water resources.

4. THE CONCEPT OF INTEGRATED WATER RESOURCE MANAGEMENT (IWRM)

Allan (2003), argues that water resources management has passed through five paradigms over the last 200 years. These are pre-modern, industrial modern, late-modern green, economic, and finally political approaches. The first paradigm is associated with pre-modern communities with limited technical and organizational capacity. The second is that of industrial modernity, whereby the state and private sector activity boosted by developments in science and technology gave shape to the 'hydraulic mission' (i.e. harnessing water resources for human needs as typified by the era of 'big dam building' and the rapid extension of irrigation systems). This period, extending for roughly 100-150 years to about 1980, was characterised by the belief that people could control nature, and that scientific knowledge could provide exact and incontestable information for decision-making.

For Allan (2003) it is only by the year 2000 that the political nature of water resources management has been acknowledged. Allan calls his fifth water management paradigm integrated water resources management (IWRM). IWRM embodies all previous approaches, including recognition of the political nature of decisions regarding the allocation and usage of water. IWRM is defined as a holistic framework that provides wide-ranging and interpretive principles to guide the management of water resources. It recognizes that water must be considered in all its forms if it is to be managed sustainably for the benefit of all users now and in the future.

Thus, water resources management practice has undergone changes in management approaches and principles over time. The earlier paradigms, which are still prevalent in the practice of most countries today are characterised by what scholars refer to as the hydraulic mission where extreme engineering was the order of the day. Water resources managers and policy-makers were driven to manage and supply water to people for its direct compartmentalised uses such as drinking water, agriculture, and providing power for domestic and industrial use.

IWRM is a response to this much-criticized, sector-by-sector approach to water management. According to Mulder (2005), it is the product of water policies in the developed countries like the United States of America, the United Kingdom, Canada, France, and Germany, among others. For Schlager and Blomquist (2000), concerns by environmentalists and the scientific community during the early 1990s about the deterioration of water quality (caused by human activities and industrial pollution) and the limited water resources, subsequently led to widespread support for the IWRM paradigm.

Cap-Net (2009) sees IWRM as a systematic process for the sustainable development, allocation and monitoring of water resource use in the context of social, economic and environmental objectives. IWRM is about integrated and ‘joined-up’ management. It is about promoting integration across sectors, applications and groups in society and time based upon an agreed set of principles. As observed by the Global Water Partnership (GWP) (2000), it contrasts with the sectoral approach that leads to uncoordinated water resources development and management resulting in waste, conflict and unsustainable systems.

The IWRM paradigm is characterised by the integration of society and natural resources (Mulder, 2005). This refers to the active involvement of water users in water institutions at the level of clearly defined catchment areas. A catchment area is a geographical area where the surface and groundwater naturally flows into a common watercourse such as a river. Catchment demarcations help inhabitants (both human and the ecosystem) benefit from available water resources because they allow full participation of community members in the catchment decision-making process. Strategic plans for the catchment should be generated from all residents. Water allocation must take the entire ecosystem’s needs (human, vegetation, animals) into consideration. Catchment councils are statutory bodies created as platforms for different stakeholders to consult and collectively manage water resources in that catchment area. In Zimbabwe, catchment boundaries straddle provincial and district borders, because they are based primarily on the major river systems rather than on political administrative boundaries.

The foregoing and many other standard definitions of IWRM have four main characteristics; equity, efficiency, sustainability, and process. Thus, IWRM aims at:

- promoting more equitable access to water resources and the benefits that are derived from water in order to tackle poverty;
- ensuring that scarce water is used efficiently and for the greatest benefit of the greatest number of people; and
- achieving more sustainable utilisation of water, including creating a better environment.

IWRM is also a process of moving from an existing state to some envisaged and preferred future state by achieving commonly agreed principles or best practice in managing water through the involvement of all

relevant stakeholders. It is a process of implementing the Dublin Principles as outlined below:

- **Principle 1**: Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment. Since water sustains both life and livelihoods effective management of water resources demands a holistic approach, linking social and economic development with protection of natural ecosystems. Effective management links land and water uses across the whole of a catchment area or ground water aquifer.
- **Principle 2**: Water development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels. The participatory approach involves raising awareness of the importance of water among policy-makers and the general public. It means that decisions are taken at the lowest appropriate level, with full public consultation and involvement of users in the planning and implementation of water projects.
- **Principle 3**: Women play a central part in the provision, management and safeguarding of water. This pivotal role of women as providers and users of water and guardians of the living environment has seldom been reflected in institutional arrangements for the development and management of water resources. Acceptance and implementation of this principle requires positive policies to address women's specific needs and to equip and empower women to participate at all levels in water resources programmes, including decision-making and implementation, in ways defined by them.
- **Principle 4:** Water has an economic value in all its competing uses and should be recognised as an economic good. Within this principle, it is vital to recognise first the basic right of all human beings to have access to clean water and sanitation at an affordable price. Past failure to recognise the economic value of water has led to wasteful and environmentally damaging uses of the resource. Managing water as an economic good is an important way of achieving efficient and equitable use, and of encouraging conservation and protection of water resources.

According to Moriarty, Butterworth and Batchelor (2004) the fourth principle is misunderstood in many ways in the water and sanitation sector. They argue that it is often confused with issues of cost recovery and privatization of water utilities. Yet the economic value of water and the costs of managing and supplying it are two different issues. Treating water as an economic good means trying to promote higher value uses of water. This could mean, for example, favouring industrial uses over agriculture. Or perhaps promoting higher value crops under irrigation. The highest value use of water is always domestic supply, and there are increased costs for the economy (e.g. in health) when supplies fail. Recognising the value of water use does not necessarily mean that this value should be passed on to all water users as a direct tariff. Values and charges (tariffs) are different things. Tariffs should as far as possible reflect the objectives of water resource managers, while ensuring that access by vulnerable communities for domestic or irrigation water is protected through mechanisms such as variable tariffs and targeted subsidies (Moriarty, Butterworth and Batchelor, 2004). Savenije (2002) concurs thus:

> Since the Dublin conference on water and the environment it has become generally accepted among water resources managers that water should be considered an economic good. However, what this entails is not all that clear. The problem is not with the terminology. It is the interpretation that causes confusion. One can distinguish two schools of thought. The first school maintains that water should be priced at its economic value. The market will then ensure that the water is allocated to its best uses. The second school interprets 'water as an economic good' to mean the process of integrated decision making on the allocation of scarce resources, which does not necessarily involve financial transactions.

Thus, as observed by Van der Zaag and Savenije (2002), one can distinguish two schools of thought on the economic value of water. The market oriented view is advocated by the World Bank (Savenije, 2002). This study subscribes to the second school of thought that interprets ‘water as an economic good’ to mean the process of integrated decision making on the allocation of scarce resources. This does not necessarily imply financial transactions. In fact, the concept of water as an economic good implies that ‘decisions on the allocation and use of water should be based on a multi-sectoral, multi-interest and multi-objective analysis in a broad societal context, involving social, economic, environmental and ethical considerations’ (Savenije, 2002).

Savenije (2002) argues that water is not a simple economic good. It has a large number of characteristics that distinguish it from other goods. Individually, these characteristics may not be unique, but their combination makes water a special economic good. As a result, the application of regular economic theories to water resources management is not very efficient. The special characteristics include water being essential, scarce, fugitive, bulky and non-substitutable. Furthermore, it is not freely tradable and is a public good bound by its location, high production and transaction costs. Selling it is difficult because its market is not

homogeneous and water has high merit value (Savenije, 2002). When viewed as a combination these characteristics make water a unique and highly complicated economic good. This makes Savenije (2002) to conclude that water does not allow the application of market theory to its allocation between different water using categories. He further argues that within a sub-system, economic pricing may be a useful tool to reach efficiency, but allocation efficiency at that scale is only a minor problem in view of the major global issues that the water sector is facing.

According to UNESCO (2006) the Global Water Partnership has identified thirteen key IWRM change areas within overall potable water supply governance. Together these areas form the process of moving towards a more integrated water management approach. The key change areas are contained within a framework divided into the enabling environment, institutional roles and management instruments as outlined below:

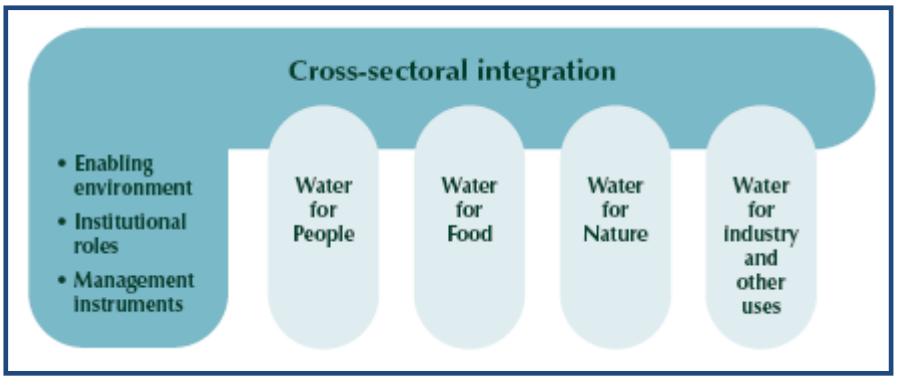

Figure 1: IWRM and its relation to sub-sectors (Source: GWP, 2000)

The framework in figure 1 illustrates the multifaceted approach by IWRM in order to put the Dublin Principles into practice. Many of the tools in the framework are complementary, and successful application of one tool to a given problem depends on simultaneous application of a number of other tools.

It is important to note that the integrated water resources management paradigm should not be treated as a rigid prescription. It is a broad and elastic framework that should be contextualised (Xie, 2006; Mulder, 2005; Chikozho, 2005; GWP, 2000). According to Xie (2006) IWRM is a process, not a product, and it serves as a tool for assessment and programme evaluation. It does not provide a specific blueprint for a given water management problem but rather is a broad set of principles, tools, and guidelines, which must be tailored to the specific context of the country or region or river basin. GWP (2000) summarises the situation as follows:

- IWRM does not have a universal blueprint;
- IWRM practices depend on context;
- integration is necessary but on its own it is not sufficient;
- well-coordinated natural and human system interaction is important;
- land and water management must be integrated;
- the distinction and importance of green water and blue water must be recognised;
- there should be integration of surface water and groundwater management;
- quantity and quality in water resources management must be integrated;
- there should be integration of upstream and downstream water-related interests;
- there must be mainstreaming of water resources; and
- cross-sectorial integration must be in accordance with national policy development.

GWP (6) reports that the concept of IWRM is widely debated. This translates into ambiguity and a whole range of different definitions. Because of this, the agreed principles for concrete action become a great challenge. Regional and national institutions must develop their own IWRM practices using the collaborative framework. In short, IWRM practices have to be contextualised.

It is further argued that integration is necessary but on its own it is not sufficient (GWP, 2000). Integration per se cannot guarantee development of optimal strategies, plans and management schemes because the integrated ingredients may be all of poor quality. Mixing two poor ingredients does not make a good meal.

The concept of integration implies an interaction between the natural and human system. Thus, the concept of IWRM, in contrast to traditional fragmented water resources management, at its most fundamental level is as concerned with the management of water demand as with its supply (GWP, 2000). As such, integration can be considered under the following two basic categories:

- the natural system, with its critical importance for resource availability and quality; and
- the human system, which fundamentally determines the resource use, waste production and pollution of the resource, and which must also set the development priorities. (GWP, 2000).

Emphasis is also on integration of land and water management. According to GWP (2000) an integrated approach to the management of land and water takes as its departure the hydrological cycle transporting water between air, soil, vegetation, surface and groundwater sources. As a result, land use developments and vegetation cover influence the physical distribution and quality of water and must be considered in the overall planning and management of the water resources.

It should be noted that an important stakeholder in IWRM reforms is local government, defined by Nyagwambo and Smits (2010) as 'the lowest tier of government with juridical authority over a defined geographical area (often but not always consisting of a governing body and full-time secretariat staff)'. Examples of local governments include municipalities and district councils.

The IWRM paradigm implies that water-related developments within all economic and social sectors should be taken into account in the overall management of water resources. Thus, water resources policy must be integrated with national economic policy, as well as with national sectoral policies. Conversely, economic and social policies need to take account of the water resource implications, for instance, national energy and food policies may have a profound impact on water resources, and vice versa. Hence, developments must be evaluated for possible impacts on, or requirements for the water resources. The development and management of water resources has an impact on the economy and society through various pathways, such as migration, settlement growth, and changes in the composition of industries. Consequently, the water resources management system must include cross-sectoral information exchange and co-ordination procedures, as well as techniques for the evaluation of individual projects with respect to their implications for the water resources in particular and society in general.

5. *IWRM IN SOUTHERN AFRICA*

According to Chikozho (2005) almost all countries in southern Africa have instituted water reform programmes in which decentralised catchment-oriented structures, based on the IWRM paradigm, are expected to play a major role in water governance. Nevertheless, he further observes that empirical evidence from southern African countries 'that have been implementing these reforms indicates that positive results from these reforms will be long in coming (that is, if they ever do)'. This is not surprising as even the advanced economies and pioneers of these reforms took decades to accomplish a semblance of success.

SADC (2005) reports that since the mid-1990s member states have engaged in wide ranging and intense consultations on development of the water sector in the region. This has brought a heightened awareness of the importance of water for socio-economic development, regional integration and poverty reduction.

There are, however, a number of institutional, technical, economic, social and environmental constraints on the effective management of the region's water resources as observed in the orientation section of this paper. These issues are being addressed through a number of programmes and projects that form part of the regional strategic action plan for integrated water resources development and management (RSAP-IWRM) which is now a component of the regional indicative strategic development plan (RISDP). The RSAP is implemented by the SADC secretariat through the directorate of infrastructure and services' water division (DIS-WD).

The SADC water resources governance policy has nine thematic areas which address the water resources management issues and challenges. The main policy areas are:

- regional cooperation in water resources management;
- water for development and poverty reduction;
- water for environmental sustainability;
- security from water-related disasters;
- water resources information and management;
- water resources development and management;
- regional water resources institutional framework;
- stakeholder participation and capacity building; and
- financing integrated water resources management in the region (SADC, 2005).

The major vehicle for implementing this policy is the existence of well-functioning river basin organisations. The basins known as catchment areas are established on shared watercourses. They operate under sound legislation and systems for planning and stakeholder involvement embracing the IWRM principles. Member states are required to harmonise their policies with the regional water policy. There should also be closer coordination of the regional water policy with other sectoral policies, especially the major water use

sectors like trade, agriculture, energy and the environment.

Nonetheless, Beukman (2002) argues that while there may be logical and scientifically sound reasons for management of water at catchment management level, there are a host of practical and institutional complexities. Catchment management area boundaries do not coincide with administrative or political boundaries as already said in the case of Zimbabwe above.

6. RESEARCH METHODS

This study is based on the comparative, systems and interdisciplinary approaches. To meet the demands of this multidimensional framework a variety of data sources were used to ensure a balanced analysis and evaluation of the problem. The research undertaken included an extensive review of theoretical literature as well as the use of empirical methodology. The following sources were consulted to ensure a balanced review of both primary and secondary sources of relevance: government legislation, municipal policy documents, as well as published academic works. The scope of the empirical investigation was limited to the Harare and Masvingo municipalities with a combined population of about 5.5 million people.

The first phase of the studies focused on potable water governance investigation of available sources in the municipal, national, international, NGO, and professional institutes' archives and libraries, as well as websites dealing with the areas selected for study. This preliminary study helped in shaping the structured interviews and informal discussions that followed. Structured interviews and informal discussions on IWRM policies and their implementation in the selected cases were conducted with 11 interviewees. The 11 interviewees included:

- Masvingo city's acting town clerk (1);
- Masvingo rural's district council chief executive (1);
- Masvingo city's housing officer (1);
- heads of water services management/civil engineers responsible for water resources from the municipalities of Masvingo and Harare (3);
- front-office water services officers (1x2);
- Harare's accounting assistant (1); and
- two research assistants (not municipal employees), (one assistant from each of the study locations).

In the formal structured interviews, a set of questions was prepared to serve as a guide to stimulate discussion in the structured interviews. Interviewees were given an option to either participate or decline participation. None of them declined to do so.

7. DESCRIPTION OF STUDY CASES

7.1. Harare

This study was conducted in urban and rural communities of Zimbabwe including Harare urban, Masvingo urban and Masvingo rural.

The Harare Metropolitan Province is composed of Greater Harare, Chitungwiza, Ruwa and Epworth. The main focus was on Greater Harare with an estimated population of 2 175 000 (Demographia, 2010).

The Harare Metropolitan Province falls under the jurisdiction of the Upper Manyame Sub-catchment, one of the five sub-catchments that constitute the Manyame catchment area. The others are Middle Manyame, Lower Manyame, Angwa-Rukomechi and the Msengezi sub-catchments. The Manyame catchment is the most urbanised, populous and industrialised of the seven catchment divisions of the country. This has created a huge water demand in this area, in addition to experiencing the most severe water pollution problems.

In terms of the Urban Councils Act (1996), Harare Municipality is a water authority responsible for potable water supply and sanitation in its demarcated municipal area. The metropolitan authority obtains its raw water from a number of dams on the Manyame River and its tributaries:

- Seke Dam (capacity 3380 Ml);
- Cleveland Dam (910 Ml);
- Lake Manyame (480,236 Ml);
- Lake Chivero (247,181 Ml); and
- Harava Dam (9026 Ml) (Nhapi, *et al,* 2002).

Of these dams, Chivero and Manyame are the main reservoir sources of raw surface water supply to the metropolitan municipality. According to the government of Zimbabwe's Department of Water Records (files accessed on 25 January 2010), Lake Chivero was designed for a full capacity surface area of 26.5km^2, a volume of 247,181,000 cubic metres and a mean depth of 9.3m, with the deepest point measuring about 27m. According to Nhapi, et al (18), the lake overflow level is at 1,368m above mean sea level.

The rainfall pattern for the Chivero catchment varies greatly, with an average precipitation of around 830mm per annum. The spillway at Lake Chivero rarely releases water in the dry months of July to November, while inflows are observed throughout the year. There are no regulated outflows from Lake Chivero into the Manyame River because the floodgates are permanently closed. The lake inflow/outflow regime therefore mainly dictates seasonal water quality and, to some extent, the self purification capacity of feeding rivers and of the lake itself. Some of the water is abstracted, treated and used in towns before it returns to the lake as sewage effluent. Only about 30% of the lake's inflows are abstracted for urban use. The rest either evaporates or flows downstream where some of it is abstracted for agricultural irrigation (Nhapi, *et al,* 2002).

Lake Chivero, although receiving the bulk of urban contamination, supplies most of the raw water actually abstracted for the Harare metropolitan area. On the other hand, Lake Manyame (which receives little urban contamination) supplies far less raw water abstracted for the Harare metropolitan area. Nhapi, et al (2002) observes that it is more rational to increase abstractions from Lake Manyame, which is much larger than Chivero, with a volume of 480,236,000m^3.

Since the establishment of Harare in 1890 the city's population, industrial and commercial activities have grown rapidly, but this remarkable growth has not been accompanied by corresponding water services infrastructure and professionalism, especially in the post-colonial period (Musemwa, 2008). The Morton Jaffray Water Works built in 1953 to provide the city with clean water is yet to be upgraded. Harare's two main sources of water (Lake Chivero and Lake Manyame) are seriously polluted by sewage effluent and by industrial and agricultural waste. In May 2005, government decision to transfer the governance of water resources from the metropolitan municipalities to the Zimbabwe National Water Authority (ZINWA) exacerbated the situation (Musemwa, 2008). As observed by CHRA (2009), water borne diseases have been prone to break out regularly in the city, culminating in the catastrophic cholera outbreaks of 2008-2009.

In the light of the 2008- 2009 cholera outbreak in Harare, it has been proven that Harare's potable water supplies are decidedly below acceptable standard.

7.2. Masvingo

Masvingo is the central district of the seven districts in Masvingo Province, Zimbabwe. The district comprises the city of Masvingo, Masvingo Rural, Mashava Mine and Renco Mine.

The district is one of the dry areas of Zimbabwe. Rainfall is erratic, unreliable and unevenly distributed ranging from 450mm in the south to 300mm in the north. The rainy season is between November and April but the area is prone to periodic seasonal droughts and severe dry spells even during the rainy season. The weather is hot and dry throughout the year, except during the summer when the rains come. Agriculture is the main activity in the district, which is ideal for cattle ranching and growing of drought resistant crops.

In terms of the Urban Councils Act (1996) the city of Masvingo is a water authority responsible for potable water supply and sanitation in its area of jurisdiction, excluding the rural and communal areas surrounding the city which are under Masvingo Rural District Council. The main source of raw water for the Masvingo City is Lake Mutirikwi, the biggest inland lake in the country. The source is vulnerable to mining and agricultural pollution from the surrounding mining and agricultural communities, especially after the 2000s land seizures.

In the past few years, Action Fame (a NGO) has sunk boreholes in all the high density suburbs to provide unemployed women with water for gardening. These boreholes are also used for domestic water during frequent pipe bursts and subsequent water cuts.

According to Dube (2002), the city of Masvingo water works was last upgraded in 1982.

8. *EMPIRICAL FINDINGS*

Residents / stakeholders involvement in the adoption of the new policy framework

The research question addressed the extent to which the grassroots and other stakeholders are involved in the formulation and adoption of legislation and policies that govern their access to potable water supply services in Zimbabwe. Literature review revealed that water sector reforms in Zimbabwe were a result of both international pull factors and internal push factors. The international community has been moving towards the new IWRM framework. The winds of change have swept through the world with some countries climbing onto the bandwagon blindly.

Importantly, countries in southern Africa have historical forces that demanded widespread reforms in the governance of water resources. Thus, while the winds of change and reorientation of the water sector were blowing from the West and the international community was demanding restructuring of the water sector in southern Africa, there were also strong forces from within demanding that the water needs of the people in the region be addressed. Thus historical analysis, literature review and documentary evidence locate the origins of water reform in Zimbabwe on both the international and internal stage working together in a systems framework where inputs had to be processed into outputs and outcomes. In short, all Zimbabweans had a significant role in

the initial stages of embracing the IWRM paradigm albeit they knew little about its existence elsewhere. They were visionary enough to envisage its advantages over the fragmented efforts forced upon them by years of colonialism.

Documentary analysis shows that having laid the foundation for the process of change in the water sector as shown above, the people soon lost the driving seat to international forces. The change process became an imposition from above. What the local ruling elite did was to embrace the change processes from the external arena, forgetting and suppressing internal forces that had initiated this reform and previously been in the driving seat.

All the interviews showed that residents were not fully involved in the decision-making process in the adoption of the IWRM paradigm. The city engineer in Masvingo, confessed that 'Currently there is no direct involvement of locals'. The interviewees in all the local authorities supported this view. All doubted the feasibility of 'all stakeholders involvement' in the water governance process. Some even said the grassroots level was only worried about getting potable water not how it gets to them.

The only way to involve people, according to the interviewees, was through their councillors and parliamentarians. Thus, from a general point of view, councillors represented their residents indirectly. What about the initial stages, the introductory stages of the macro-policies, did the councillors or parliamentarians consult with the people? All interviewees said this was policy from above. The city engineer of Masvingo gave the example of the ZINWA takeover of the governance of potable water supplies in most urban municipalities in Zimbabwe in 2005. He said. 'The ZINWA takeovers were decided at cabinet level. Parliament was against the takeovers. The takeovers were not planned; they were all hostile takeovers'.

When the researcher suggested to the water executives that they could ascertain residents' ideas through meetings, suggestion boxes, surveys, awareness campaigns and training workshops, the reply was that suggestion boxes and meetings were already part of the communication channels with residents. All the municipalities have wards and ward committees led by an appointed or elected councillor. It is the responsibility of the councillors to tape residents' views and bring them for consideration at council or municipal meetings and discussion sessions. Yet, when the decision to adopt IWRM was taken, local authorities claim that they were not consulted. This implies that all other stakeholders (among them those at grassroots level) were not consulted. When the researcher talked of pilot schemes in the Mazowe catchment area, they were still not convinced. They wanted the theory and the philosophy behind the new thinking to be debated among local authorities even before these pilot schemes.

All interviewees thought surveys were quite acceptable but expensive for the municipalities. Interestingly, they all identified consumers as the most important actors in the governance of water resources, yet they did not involve them fully in decision-making. As already seen from the above statement by one of the executives, all of them confessed that the new thinking was just given to them by central government without them giving their own input. They all, however, reiterated that the new thinking was progressive and if well handled, is quite promising.

Institutional and technological frameworks

The institutional framework includes the policy and legislative frameworks, government ministries, local governance structures, surface and ground water and municipal by-laws. These structures, although they have a decentralisation and grassroots flavour, are largely hierarchical with central government (the minister) at the top, followed by a central authority (ZINWA), provincial governance, municipalities and councils in the traditional management style. Technology focuses on infrastructure (dams and other water sources, water works, water pipes, tanks, etc.), water treatment, information dissemination, level of expertise, websites, billing and payment systems, among others.

Documentary evidence analysis has already shown that Zimbabwe has embraced potable water supply governance institutional reforms in line with the dictates of the IWRM paradigm. The government has introduced new policy and legislative frameworks, some of which include:

- Water Act (Act No. 31 of 1998, Chapter 20: 24);
- National Water Authority Act (Act No. 11 of 1998, Chapter 20: 25;
- Water (Catchment Councils) Regulations, Chapter 20: 24, Statutory Instrument 33 of 2000;
- Water (River Systems Declaration) Notice, Chapter 20: 24, Statutory Instrument 34 of 2000;
- Water (Sub-catchment Councils) Regulations, Chapter 20: 24, Statutory Instrument 47 of 2000;
- Water (Waste and Effluent Disposal) Regulations, Chapter 20: 24, Statutory Instrument 274 of 2000;.
- Water (Permits) Regulations, Chapter 20: 24, Statutory Instrument 206 of 2001;
- Guidelines for boreholes, groundwater monitoring and groundwater use: September 1999; and
- Towards integrated water resources management: Water resources management strategy for Zimbabwe, 2001;

Documentary evidence has also established the growing worldwide problem of water scarcity and highlighted Zimbabwe as among the countries highly affected by the problem of increasing water shortages.

Whereas the main immediate source of water in the urban communities studied is tap water, the rural Zimbabwean communities get their water from a variety of sources (rivers, open wells, community boreholes, protected private wells, etc.).

The interview with Masvingo's city engineer established that the population of the city has by far outgrown the city's potable water supply infrastructure. This is in agreement with Dube's (2002) findings that potable water supply infrastructure in Masvingo Urban 'can hardly keep pace with the increasing water consumption and demand'. He also established that the costs of installing new infrastructure are ever increasing and are far ahead of affordability. The city engineer is in agreement: 'Council needs at least US$30 million for a project that will bring enough water to the city', he said. This amount is far ahead of what the city of Masvingo can afford. The engineer also confirmed that:

> Currently the city is failing to meet water demand and has been forced to cut water supplies during the night as a demand management exercise. The council is currently supplying 24 mega litres (24 million litres) per day and the city's current demand is at 48 mega litres. We cut water supplies at night when the demand is low, but the plant is still operational pumping water 24 hours to make sure the reserves are full by the time demand is high during the day

Further discussion with the city engineer showed that the reason why demand cannot be met is not the major source of raw water (Lake Mutirikwi), but inadequate infrastructure to draw water from the lake. He revealed that the current city's potable water supply infrastructure was designed by the colonial municipality to serve a maximum of 15 000 people, but it is currently serving over 100 000 residents. Thus, in addition to being outdated, the infrastructure is overstressed. This translates into frequent daily pipe bursts and water cuts.

In Harare the situation was even worse, because both the sewer and water pipes are prone to burst. Informal discussions with the research assistant established that burst pipes were the norm. As in Masvingo the infrastructure was found to be serving a far larger population than it was designed to serve. The Harare research assistant summarised the infrastructural problems in Harare as follows:

- population growth in Lake Chivero's urban watershed has outstripped the city's service capacity;
- poor maintenance of infrastructure has greatly compromised the urban settlement's ability to manage fresh water;
- the growth of high density satellite settlements with weak revenue bases poses funding problems for service provision and development;
- changes in flow of the Manyame River have resulted in waste water returns being a major component of the Lake's hydrological inflow;
- in the past few years new water pipes were laid down in the central business district, Highfield, Mbare, Warren Park, Glen Norah, Glen View, Mabvuku and Tafara, but there are still burst pipes in those areas; and
- the sewer system and water reticulation infrastructure in Harare requires complete rehabilitation, which calls for substantial funding from central government, business and industry.

As in the case of the city of Masvingo, he believes that Harare has enough sources of raw water to meet its needs. What the city lacks is the capacity to purify water to meet the demand because of rapid population growth. He believes the city does not have the financial resources to expand the water treatment works. The situation is worsened by the fact that the equipment needed has to be imported.

According to a social worker with the Celebration Ministries in Harare (personal face to face interview), poor water supplies in the city of Harare have pushed almost every resident in the Harare metropolitan area into sinking boreholes in their yards. She however expressed concern over the issue of pollution from nearby cemeteries and agricultural activity. Although groundwater quality in the Harare catchment area has been found to be largely of good quality due to the largely alluvial sandy soils, she remained sceptical. She argued:

> The 2008- 2009 cholera outbreak has its origins in groundwater. Harare had run dry for several weeks. People fetched water from family wells, most of which were well protected. Of course, the majority depended on drainage streams and unprotected shallow wells. But the first cholera death cases were witnessed among those who fetched water from protected family wells. There was this scenario where one family would ask people to pay for water fetched from their well and another family allowed people to get water from their well for free as in our culture we do not deny people water. The first cholera death occurred among those who got free water from this other family and people suspected poisoning by the family that asked for payment for water from their well. The case involved the police and thus members of the suspected family

> were arrested and kept in custody for two days. They were only released after several other deaths and hospital tests which confirmed that the deaths were not a result of poisoning but cholera…

She also questioned the expertise of the city of Harare plumbers and technicians who could not locate the ageing burst pipes underground. She claimed that some underground pipe bursts were allowed to leak for several months without the problem being rectified because the plumbers kept digging at the wrong points, using a random trial and error approach to identify where the pipeline needed repair. Yet the Municipality of Harare has good underground and geological maps. She thus concluded that 'our problem is mainly a water management problem not a water supply problem!'

9. CONCLUSIONS

This study established that while the framework for a perfect stakeholder participation water management system exists in Zimbabwe, the situation on the ground does not reflect this. The reform process has not taken off as expected owing to a combination of factors ranging from conflicting policies and weak institutional linkages, to insufficient funding. Thus the effectiveness of the new system has been found wanting in as far as implementation is concerned. It has been established that IWRM in southern Africa has a very strong base in form of internal push factors and international pull factors, but also faces an uphill task in terms of aligning local and international forces, thereby co-opting the much needed grassroots participation for human capacitation and socio-economic development as guided by the IWRM framework.

Due to pipe bursts and water interruptions, access to tap water was by no means always assured. During water cuts, residents depended on risky and potentially polluted sources of water even in urban centres. Due to agricultural and mining activity, cemeteries, poor sanitation and non-existent toilet facilities in the peri-urban areas and nearby shanty communities, pollution is a very real danger.

Analysis of data from the triangulated sources established that people across the board had a significant role in the initial stages of embracing the IWRM paradigm albeit they knew very little about its existence elsewhere. They were visionary enough to envisage its superiority to the fragmented approaches forced upon them by years of colonialism. It was those at the grassroots who put pressure on those in power to provide a more equitable and participatory approach to potable water supply governance and distribution. They were thus a push factor in the adoption of the IWRM framework. Globalisation played an equally important role. Developments in Western countries pointed the way ahead and were used by the wealthy overseas donors as benchmarks and standards for accessing financial, equipment and technological aid. A combination of these push and pull factors laid the foundation for the change process. Nonetheless, these forces were not properly meshed and thus local stakeholders (especially those at the grassroots) were soon side-lined in the formulation and adoption of the new policy framework. Having laid the foundation for the change process in the water sector, the people soon lost the driving seat to international forces in the planning of the change process. This is how the change process became an imposition from above. What the local ruling elite did was to embrace the change processes from the external forces, (along with the very useful funding) forgetting and suppressing internal forces that had previously been at the forefront of reform. The final conclusion is thus that stakeholders, especially at the grassroots, have been largely side-lined in the formulation and adoption of potable water supply policies in Zimbabwe. They laid the foundation for a pro-grassroots change process, but lost the initiative to powerful international forces once the reform process took off. The opportunity for pro-grassroots forces of change in the potable water supply governance was lost. The challenge was, and still is, an alignment with and adaptation of international forces to local and national demands for contextualisation and meaningful development that benefits the people.

It has been established that Zimbabwe has adopted the IWRM framework and has formulated policies and legislation in line with the new thinking. The major problem with the new policy and institutional framework, however, is that it is highly fragmented. This has also blurred issues of accountability, answerability and responsibility. For example ZINWA is supposed to be the central authority that facilitates water supply to municipalities, councils and other local authorities. Nevertheless, from 2005 to 2009 it took over the management of potable water supply to consumers in most major urban centres. This move has caused confusion and more problems for the consumer. There are also issues of fragmented legislation, ministries and other administrative institutions. For example water legislation includes the Water Act of 1998, the Zimbabwe National Water Authority Act of 1998, the Natural Resources Act of 1941. As a result, there is a considerable overlap of institutional mandates. For example, the Natural Resources Act of 1941 in Zimbabwe provides for the construction of works to prevent soil erosion and promote the conservation of soil and water resources. With reference to water development and usage, the legislation reflects several potential conflicts of an administrative nature vis-à-vis the provisions of the Water Act of 1998. It has been a complex task to address cooperative governance between the national, provincial and local spheres of government. It has been established that the

geographical and institutional boundaries of water management bodies by and large follow hydrological boundaries without taking political and administrative boundaries into consideration. This has tended to split communities. Thus, clear-cut jurisdictional responsibilities between the catchment and sub-catchment councils, water user boards, water point committees and rural district councils, still need to be clarified. In the final analysis, while the framework for a perfect water management system seems to exist in Zimbabwe, the situation on the ground does not reflect this. There is confusion and lack of proper coordination amongst the different authorities and institutions that have a bearing on the management and development of water resources.

The major purpose of this study is to build a multi-stakeholders systems theoretical framework that would help in bridging the gap between policy and practice in potable water governance in Zimbabwe. The study established that policy and practice were moving in parallel directions in the studied municipalities. With the deterioration of the political climate in the country, policy became merely decorative. This study revealed that water authorities simply made unilateral decisions even without involving their more junior colleagues. Thus, policy and practice moved in opposite directions. The major argument in this study is that policy-makers should blend global push factors and internal pull factors to ensure that water reforms benefit their constituent population. The complex multi-stakeholder systems theory requires an in-depth evaluation of the situation so as to come up with the best fit taking cognisance of the fact that whatever happens on any of the angles of the multifaceted system has profound effects on the total system. Thus the management and governance systems so developed should not only be proactive but should also be based on a thorough analysis and understanding of the entire system.

The overall conclusion of this study is that there is minimal participation of stakeholders in the governance of potable water supply in Zimbabwe. It can, therefore, be concluded that the demands of IWRM are not properly adhered to and therefore not implemented as per the much talked about framework. This study found that the major excuse for not adhering to the dictates of the adopted policy (IWRM) and the ambient legislative framework was found to be unavailability of resources. Despite the resources excuse, it was established that in all the selected study cases government and local authorities are not fully committed to the change processes for political reasons. In the final analysis, this study thus agrees with the claim that it is not simply lack of resources that is preventing the implementation of the new holistic approach to water governance (IWRM), but poor mobilisation and mismanagement of the available resources. The main challenge is neither water stress nor scarcity of water. The problem lies at the door of those responsible for the governance of potable water supply. Water stress and scarcity are symptoms of the overall poor governance of natural resources that are, after all public property.

10. RECOMMENDATIONS

Based on the discussion of findings and conclusions above, this study provides a wide range of recommendations. These are as outlined below.

- take a holistic approach using a multidimensional stakeholder philosophy;
- water laws must be enforced;
- build partnerships and avail incentives that will draw investment for the construction of the required infrastructure and technology;
- municipalities and local councils should embark on entrepreneurial ventures;
- respect stakeholders; use their brains and world of experience;
- policy and institutional framework should be simple and boundaries well demarcated to ensure proper coordination;
- government should undertake regular reviews and check-ups;
- political will and commitment must be heightened;
- engage women because they are the primary users and managers of water in the homestead;
- encourage increased advocacy and training; and
- improve professional qualifications of water managers.

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